# REGIONAL *EDUCATIONAL* LABORATORY
## SOUTHEAST ~ SERVECenter

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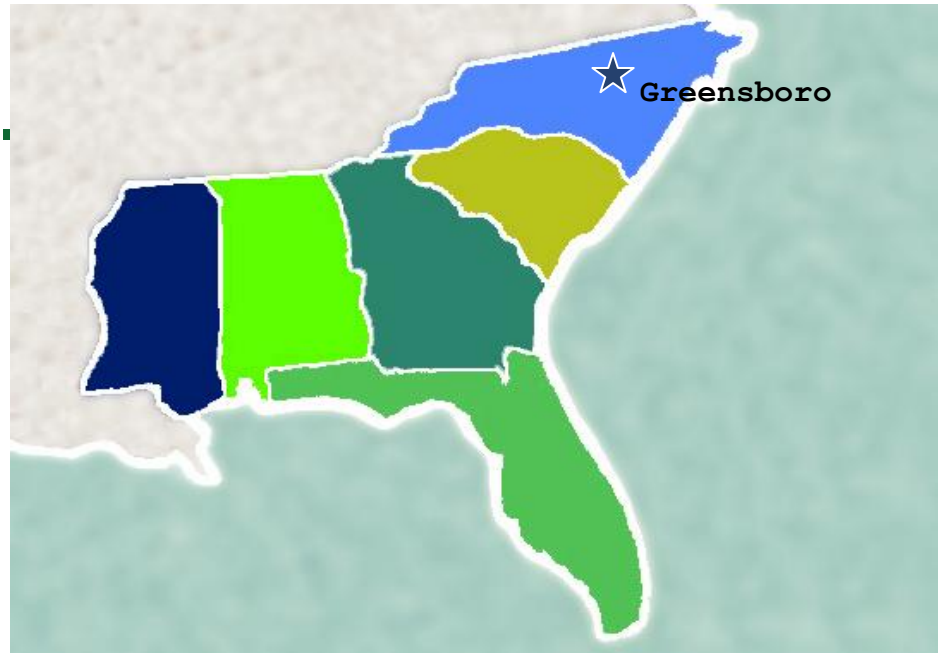
**EVIDENCE BASED EDUCATION REQUEST DESK**

**OUR GOAL**

To assist educators and policymakers in their efforts to apply the evidence base to decisions about policies, programs, and practices they encounter.




REQUEST:

What are some effective or well-developed systems to evaluate teacher effectiveness that include student-learning impact data? Please provide the pros and cons of such systems.

We organized the response to this broad question into several sections.

1) What are the various approaches to assessing student growth in achievement? There are various statistical approaches developed by various researchers, and though there is concern about what their relative strengths and weaknesses are in *generating reliable and valid growth scores*; there is also concern about whether the estimates are an accurate measure of teacher effects/quality. For this reason, we also provide a list of possible experts on this issue and could provide the backgrounds/expertise for some of these experts if needed.
2) What are the issues that have been raised around the validity of using value-added scores for high-stakes decisions about individual teachers? As this section concludes, there are issues that mitigate considering value-added scores for teachers as the *sole measure* of their effectiveness, especially with regard to high-stakes decisions. Experts advise using a broader definition of teacher effectiveness and the use of multiple measures for this purpose.
3) What are some examples of the use of teacher-level, value-added models/ modeling (VAM) scores in states or districts?

If you have any questions regarding this document, please contact the REL-SE, 1-800-755-3277 or RELSoutheast@serve.org

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## RESPONSE

Since the passage of the No Child Left Behind Act of 2001 (2002), there has been increased interest in using student achievement data (through standardized tests) to evaluate teacher effectiveness. Two U.S. Department of Education secretaries, Secretary Spellings and Secretary Duncan, have expressed interest in growth models and the need to improve the way teacher performance is evaluated. At the same time, there has been interest in creating longitudinal data systems so that student growth can be more accurately measured. The combined push for improvements in student assessments, teacher evaluation, and longitudinal student databases has led to the current educational agenda that lauds those systems that link student achievement to individual teachers. The following sections describe four major value-added models (VAMs), concerns with VAMs as the *sole measure* of teacher effectiveness, some district and state examples, and other resources related to the issue of teacher effectiveness.

### Matrix of Growth Models

Currently, one of the more prominent approaches to estimating the impact of teachers and schools on student achievement is value-added models/modeling (VAM), which is a subset of models commonly referred to as growth models.[1] Growth models stand in contrast to status models. Status models provide a snapshot of a school or subgroup performance (generally measured in proficiency levels) at a specific point in time, while growth models chart student learning gains/growth over time longitudinally (see Goldschmidt et al., 2005). This section provides a brief overview of some models currently employed. It is not intended as an exhaustive list of how all states or districts are assessing achievement growth. (A separate bibliography includes the references cited within the matrix/table.)

Table 1 below presents four models and distinct methodological approaches to estimating VAMs. The Sanders model, known most widely for its applications in the Tennessee Value-Added Assessment System (TVAAS) and the SAS Education Value-Added Assessment System (EVAAS) in North Carolina, has the broadest use. Both Ohio and Pennsylvania have adapted versions of the Sanders methodology for use in their respective accountability systems.[2] As Table 1 indicates, the Sanders model has been widely discussed in the literature as noted by the lengthy list of citations. The model utilizes a multilevel "layered" approach that uses students as their own "controls." The RAND "model" is essentially an expansion of the Sanders model to include additional controls for students, teachers, and schools as well as examining interaction effects among various sets of covariates. The Hanushek model utilizes a methodology popular within econometrics with their fixed effects approach that uses a series of dummy variables to account for the time-invariant variables that are not included in the model. They have expanded the model to include school-by-year fixed effects as well. The Chicago approach most closely resembles more recent proposals within some of the differentiated accountability models and is

[1] For overviews of growth modeling and VAM generally, see the notes for Table 1.
[2] Ohio value-added model ("Battelle for Kids") information and website: http://portal.battelleforkids.org/ohio/home.html?sflang=en; the Pennsylvania Value-Added Assessment System (PVAAS), information, website and realted research: http://www.pde.state.pa.us/a_and_t/cwp/view.asp?A=108&Q=108916; see also McCaffrey & Hamilton (2007) for a study of the earlier implementation of the PVAAS system.

the most unique of the four models described in Table 1. The Chicago approach deliberately attempts to model the gains/growth in student test scores by utilizing large longitudinal datasets with vertically aligned/scaled test scores.

**Table 1: Matrix of some value-added models**

| Model | Chicago Public Schools | Hanushek et. al | RAND | Sanders/EVAAS/TVAAS |
|---|---|---|---|---|
| **Type of Analytical Model** | "Productivity profile" model w/initial status trends (input trends), gain trends (learning gains), & output trends (summing input & learning gains) are estimated for each grade level. | Fixed-effects model w/school & student covariates. | Multilevel longitudinal mixed model w/student & teacher covariates (can have cross-classification as well); the "general model" as expanded from Sanders. | Layered mixed-effects model. |
| **Strengths** | Designed around strong testing system, estimated gain as well as learning gap; adjusts for school & student-level variables. | Few assumptions with fixed effects model, very flexible; uses multiple grades/cohorts to remove omitted variables bias. | Does not assume prior teacher effects are constant and can test prior vs. current teacher effects; accounts for school & student effects. | Uses all available data and can estimate effects even with missing data; does not assume linear growth; implicitly adjusts for prior achievement, additive. |
| **Weaknesses** | Does not estimate gain trends as a function of initial status; requires vertically scaled test scores; requires expertise to estimate models. | Does not estimate effects at classroom/teacher level, only grade level; only provides a "lower bound" estimate; needs large sample of teachers. | Requires large data sets to estimate effects; model affected by small class/student sizes; does not estimate school effects separately. | Assumes teacher effects are cumulative and constant over time; does not control for student covariates or teacher effects. |
| **Select References for Specific Model or Related Specifications** | Bryk et al. (1998); Millman (1997); Ponisciak & Bryk (2005); Thum & Bryk (1997) | Hanushek et al. (1998); Kain (1998); Rivkin et al. (2005). On fixed effects models generally, see Andrabi et al. (2008); Harris & Sass (2006); Lockwood & McCaffrey (2007a) & (2007b); and Todd & Wolpin (2003) | Goldschmidt et al. (2005); Heck (2009); Hibpshman (2004); Lockwood et al. (2005); Lockwood, McCaffrey, Mariano, & Setodji (2007); McCaffrey et al. (2004a) & (2004b); and Thum (2003a) | Ballou et al. (2004); Lissetz (2005); Millman (1997); Ross et al. (2003); Sanders (2006); Sanders et al. (1997); Sanders & Rivers (1996); Wright & Sanders (2008); and Wright et al. (2006). *Critique of Sanders/EVAAS/TVAAS*: Amrein-Beardsley (2008); Hibpshman (2004); Kupermintz (2003); McCaffrey et al. (2003); see Ballou (2004) and Sanders & Wright (2008) for responses. |

*Notes*: See Goldschmidt et al. (2005), Hibpshman (2004), McCaffrey et al. (2003), and Tewke et al. (2004) for more detailed reviews of the models presented. Overviews of special interest that provide comparisons of the various growth/VAM models/specifications and related issues include: Betebenner (2004), (2008), & (2009); Bryk et al (1998); Hibpshman (2004); Goldschmidt et al. (2005); Harris & Sass (2006); Linn (2008); Lissetz (2005) &

(2006); Raudenbush (2004a) & (2004b); Rowan et al. (2002); Seltzer et al. (2003); Tekwe et al. (2004); Thum (2003a) & (2003b); and Wright et al. (2006)

Because the issue of comparing the reliability and validity of various statistical approaches is so complex and difficult to understand, we offer below a preliminary list of researchers we came across in our reading who might be able to consult on this issue of comparing various statistical modeling approaches.

1. Dale Ballou (Vanderbilt University)
2. Julian R. Betts (University of California – San Diego & National Bureau of Economic Research)
3. Henry Braun (Boston College & Educational Testing Service)
4. Anthony Bryk (Stanford University & Consortium on Chicago Schools Research)
5. Harold Doran (American Institutes for Research)
6. Laura Goe (Educational Testing Service)
7. Dan Goldhaber (University of Washington & Center for Analysis of Longitudinal Data in Education Research)
8. Pete Goldschmidt (National Center for Research on Evaluation, Standards, and Student Testing [CRESST])
9. Bing Han (RAND Corporation)
10. Douglas Harris (University of Wisconsin – Madison & Wisconsin Center for Education Research)
11. Brian Jacob (University of Michigan & National Bureau of Economic Research)
12. Thomas Kane (Harvard University)
13. Cory Koedel (University of Missouri – Columbia)
14. Spyros Konstantopoulos (Northwestern University)
15. J.R. Lockwood (RAND Corporation)
16. Daniel McCaffrey (RAND Corporation)
17. Robert Meyer (University of Wisconsin – Madison & Wisconsin Center for Education Research)
18. Stephen M. Ponisciak (University of Wisconsin – Madison & Wisconsin Center for Education Research)
19. Steve Raudenbush (University of Chicago)
20. Steven Rivkin (Amerst College & National Bureau of Economic Research)
21. Jesse Rothstein (Princeton University & National Bureau of Economic Research)
22. Tim Sass (Florida State University & Center for Analysis of Longitudinal Data in Education Research)
23. Yeow Meng Thum (Michigan State University)

## Validity of Value-Added Modeling at the Teacher Level for Use in Assessing Teacher Effectiveness

Most experts conclude that growth models for holding schools/districts accountable (even though imperfect) are better than status models[3]. However, with the advent of this methodology, more uses for value-added modeling (VAM) are being considered. In this section, we summarize the concerns raised in several reviews about the validity of valued-added scores when used as the *sole measure* of teacher effectiveness.

Assessing teacher effectiveness and quality has always proven to be challenging due to the complex, dynamic, and multifaceted nature of teaching itself, with each approach presenting its own set of strengths and challenges. For example, teacher evaluation ratings by administrators or other observers could be skewed toward the high end because they can be influenced by various other ongoing professional relationships within a school. In addition, a high level of training of the evaluator or observer is required to ensure consistent and reliable use of methods. In contrast, achievement scores as a measure of teacher effectiveness might seem more objective and straightforward, but there are also factors that reduce the accuracy and fairness of these estimates of effectiveness. A March 2009 brief from the National Content Center for Teacher Quality entitled *Methods of Evaluating Teacher Effectiveness* points out that just as there are conditions that need to be in place for the effective use of classroom observation measures (e.g., availability of a high-quality observation instrument based on standards of effective teaching practice), there are also conditions or issues involved in using value-added measures to make judgments regarding teacher effectiveness (Goe & Croft, 2009).

Questions about "validity" are paramount, particularly to the degree that the results are used for "high stakes" personnel decisions such as reassignments, providing increased levels of costly professional development support for particular teachers, singling out weak teachers for possible firing, or providing merit pay/performance incentives to successful teachers.

Below we articulate some of the validity issues that have been raised about judging teacher effectiveness through value-added methods of various kinds. Validity considerations focus on the question of "how well the model accurately captures an individual teacher's contribution to student achievement growth in a particular subject area" (Goe, Bell, & Little, 2008, p. 51).

### Possibility of Inappropriate Attributions: Are there factors other than the "teacher" that might impact average growth scores across classrooms of students?

VAM assumes that as a result of the application of the statistical algorithm, the achievement gains for a school year for a group of students are due to the teacher. But students are generally not randomly assigned to classrooms, so there could be factors related to the nature of the assignment process (e.g., that some teachers with seniority tend to get the students they want, and other teachers with less seniority might get assigned more difficult students) that might cause

[3] Status models provide a snapshot of student or subgroup proficiency rates compared to a specified benchmark. These models are often restricted to one time period (or the average of two time periods). Adequate Yearly Progress (AYP) reports are a good example of statistics based upon status models.

classrooms of students to realize more or less growth in achievement. In some cases, the high/low level of growth could be more a reflection of the particular mix of students who are assembled in a classroom than of a teacher's effectiveness.

For example, Rothstein (2008, 2009a, & 2009b) and Koedel and Betts (2009a) examined data in North Carolina and San Diego, respectively, and found effects of student tracking on VAM estimates. However, Koedel and Betts found that using three consecutive years of teacher data can mitigate the bias introduced by student sorting. Both sets of authors caution against using a single year of teacher data to estimate VAMs.

Braun (2005) advised that in the absence of randomization of students to teachers, causal interpretations of high or low growth in the achievement of students to a particular teacher's effectiveness can be misleading. That is, VAM allows for the rank ordering of teachers in terms of their effects (which are "the output of a statistical algorithm"), but the rank ordering should not be equated with only "teacher effectiveness" due to the other possibilities for influences on student achievement. Variations in the quality of school resources or peer effects within a classroom are examples of factors other than the "teacher effect" that could affect growth in achievement scores differentially.

**Stability of Estimated Effects for Individual Teachers: Are individual teacher effects stable over years?**

Braun (2005) describes this as the issue of "precision of estimates." Braun (p. 10) also indicates that each teacher's ranking might be based on a relatively small number of students, so one or two outliers might impact their relative standing from one year to the next:

> Suppose for example that there are a small number of truly disruptive students in a cohort. While all teachers may have an equal chance of finding one (or more) of those students in their class each year, only a few actually will – with potentially deleterious impact on the academic growth of the class in that year. The bottom line is that even if teachers and students come together in more or less random ways, estimated teacher effects can be quite variable from year to year . . . . Moreover, the estimates can be quite volatile. So treating estimated teacher effects as accurate indicators of teacher effectiveness is problematic.

McCaffrey et al. (2009) used Florida data and found mixed results for the stability of estimated VAM teacher effects across both the models used as well as the metric chosen to measure student learning. The authors caution: "Adoption of an accountability system based solely on value added estimates of teachers' performance will result in considerable variation in who is rewarded across time" (p. 33).

**Assessment Issues: Do variations in the quality or difficulty or degree of vertical alignment of state tests from year to year or from one grade level to the next affect the accuracy of the value-added scores for individual teachers?**

The value-added approach makes an assumption that tests can be equated from year to year or across subjects such that a scale score one year means the same thing the next year. The extent to which differences in tests or forms of tests affect value-added scores is another consideration in interpreting value-added scores of teachers. Sass (2008) in a study using Florida data reported that ". . . it is clear that different tests result in different teacher rankings" (p. 5).

In one study using four years of longitudinal data for grades 6–8 from one large urban school district, Lockwood, McCaffrey, Hamilton et al. (2007) found considerable variation in estimated teacher effects with changes in the mathematics assessments. This study found that even subscales of the same test, by the same test developer, can yield different results, as can different weighting among subscales in a composite score. Although the specific findings from this district might not be replicated in other contexts, they provide evidence that inferences based on VAM can, at least in some cases, be affected by the characteristics of the outcome measure. These findings do suggest reason for caution. Lockwood et al. (2007, p. 61) went on to say:

> Users of VAM must resist the temptation to interpret estimates as pure, stable measures of teacher effectiveness. Application of VAM, particularly for high-stakes purposes, should be accompanied by an examination of both the test and its alignment with the desired curriculum and instructional approach. And to the extent possible, analyses should explore the sensitivity of the estimates to different ways of combining information from test items.

Koedel and Betts (2009a) tested for ceiling effects in VAM estimates under a broad set of conditions and found VAM estimates to be "negligibly affected" (p. 27). However, when working in minimum competency or proficiency-based testing environments, "ceiling conditions in such environments can significantly alter VAM estimates of individual teacher effects" (p. 27).

**Missing Data: How might missing data affect the meaning of a teacher's effectiveness score?**

Teachers with small class sizes, teachers with select subgroups of students (i.e., special needs, Title 1 pull-out classes, etc.), or teachers in content/subject areas not assessed can pose unique problems for value-added analysis. Imagine a scenario where one teacher's value-added score is based on data from 10 students (roughly 30% of the class) who had all the data points needed for the analysis, but another teacher's rank order is based on data from 20 students (roughly 90% of the class). Are their value-added scores equally valid? Braun (2005) indicates that a district database can have substantial amounts of missing data. If many teacher/student links or test scores are missing, there might be some bias in effect scores generated. Goe and Croft (2009) suggest that states/districts should evaluate the accuracy of their data (links of teachers to students and extent of missing data) as a precursor to thinking about value-added approaches.

McCaffrey et al. (2009) caution about using VAM measures for high-stakes decisions for teachers with few tested students (for example, teachers with small class sizes, larger numbers of students with disabilities, etc.). VAM estimates will tend to over-represent the extremes of the distributions "so rewarding or penalizing the top or bottom performers would emphasize these

teachers and will limit the efficacy of polices designed to identify teachers whose performance is truly exceptional" (McCaffrey et al., 2009, p. 32).

**Meaning of the Rank Ordering: Does the rank ordering of teachers on their value-added scores correlate with other measures of teacher or teaching quality?**

The validity of teacher effectiveness scores resulting from the application of a value-added analysis can also be examined in terms of the relationships of these scores to other data on the same teachers. That is, do these estimates of teachers' impact on student achievement relate to other measures of teachers' performance or teaching quality? A recent research brief by the National Content Center for Teacher Quality (Goe & Croft, 2009; see also Goe, 2008) concluded that studies to date have been unable to pinpoint or correlate other indicators of teaching quality with these valued-added scores for teachers. Thus, value-added analysis may point out teachers who are high or low in rankings in terms of their students' achievement gains. However, what that means in terms of teaching strategies, styles, content knowledge, prior experience, and other factors is not known. Value-added analysis can help in identifying teachers who seem to obtain very high levels of growth from their students. But, it cannot tell you what they are doing to get that growth and how much of the growth is due to the teacher versus other factors unique to their particular school or group of students.

*Summary*: There are many issues with VAM at the teacher/classroom level that can affect its use as a single indicator of teacher success or effectiveness. The most common recommendation from the research reviewed here is to *not* use VAM as the *sole measure* of an individual teacher's effectiveness for high-stakes decisions.

It is important to point out that although reviews identify some problems of value-added analysis for high-stakes personnel decisions, they also point to appropriate uses and possible needs for value-added data at the teacher level such as:

- Identifying teachers who are struggling with student achievement and examining ways to help them (if other evidence also indicates problems).
- Providing feedback to teacher preparation institutions on how their students are doing in growing student achievement as they go through the induction process.
- Identifying schools or particular grade levels that may have higher numbers of teachers with low value-added scores to identify teacher assignment issues and explore more targeted assistance.
- Evaluating student outcomes of various programmatic interventions instituted at the teacher level (e.g., professional development programs, incentives to move higher-quality teachers into lower-achieving schools).

Examining patterns of student growth by classrooms/teachers, albeit imperfect, is clearly a valuable exercise in the continuous improvement of educational services and discussions of individual teachers' effectiveness. However, most reviewers caution against using VAM estimates as the *sole measure* of individual teacher performance, especially when making high-stakes decisions regarding teacher compensation and retention/tenure.

## Sample of State and District Programs

There are very few well-developed systems that evaluate teacher effectiveness that include student achievement data (as measured by standardized test scores). Initially, the issue was the lack of student and teacher identifiers. However, most states currently have at least a student identifier, and many are creating teacher identifiers (see Data Quality Campaign--http://www.dataqualitycampaign.org/). Yet, the issues that remain relate to whether states and districts want student- and teacher-identified data linked and whether there are state policies that dictate how the data can be utilized.

In this section, we present two tables of established systems with growth models and highlight their uses of student achievement data. The first table looks at states and districts that are using student achievement data to make compensation decisions (e.g., merit pay). The second table focuses on states that require the use of student achievement data (as measured by standardized test scores) as a part of teacher evaluations.

The first table describes examples of a few districts and states that are using student achievement data as part of a performance-based compensation initiative. Although VAMs were not required as part of the U.S. Department of Education Teacher Incentive Funds (TIF), it appears that most states included VAMs in the proposals.

**Table 2: A few states and districts using student achievement as part of performance-based compensation initiative**

| State/District | Performance Incentive Program |
|---|---|
| Dallas Independent School District | • Created Teacher and Principal Incentive Advisory Council<br>• DISD has several programs including:<br>  ○ TIF (Principal and Teacher Incentive Fund)<br>  ○ DATE (District Awards for Teacher Excellence)<br>  ○ Performance Pay Program<br>  ○ Texas Educator Excellence Award (Texas Education Agency) |
| Florida | Merit Award Program (formerly STAR)<br>• Districts to apply to the program<br>• Allows awards to be determined by individual or instructional team performance<br>  ○ 60% - Student learning gains, basically student achievement as measured by standardized tests<br>  ○ 40% - Principal/supervisor evaluation |
| Minnesota | Quality Compensation for Teachers (Q-Comp)<br>• Started in July 2005<br>• Provides funding for teacher-compensation systems<br>• Established rigorous standards for measuring student achievement & teacher quality |

As noted earlier, using student achievement to measure teacher effectiveness is only one of several methods currently used and when included it does not necessarily refer to standardized test scores. In fact, the use of student achievement data is probably the least common teacher evaluation tool because of state policies regarding the use of such data to evaluate individual teachers (e.g. Minnesota, Pennsylvania, Tennessee, Utah, etc.) and because of underdeveloped longitudinal data systems (e.g. Idaho, Indiana, Maine, Missouri, Montana, etc.). Therefore, student growth is typically measured through teacher-developed assessments, benchmark assessments, student work, portfolios, and lesson plans.

In those states that are using VAMs, the data are typically used to assess what is happening at the building level or to develop professional development plans (i.e., Pennsylvania). The data are also used to calculate the number of Highly Qualified Teachers (HQT). Overall, the states leave the utilization of the data up to the district (e.g., Pennsylvania, Tennessee, Utah, Wisconsin).

- In Tennessee (Tennessee Value-Added Assessment System –TVAAS), part of the state's agreement with teachers was that the data would be confidential between the teachers and their principal and not used to evaluate individual teachers. The evaluation of teachers is up to the school districts.
- In Wisconsin, it is against state law to use student test results to evaluate teacher performance, discipline teachers, or use it as a reason not to renew their contracts (Wisconsin Statue 118.30[2]4[c]).
- Utah (U-Pass Accountability Plan) leaves it up to the districts to decide if they will analyze the data linking student achievement to individual teachers.

Some states, like the West Virginia Department of Education, have chosen not to link student and teacher identifiers because they do not believe there is enough research on growth methods.

**Table 3. Two states requiring use of student achievement data (as measured by standardized test scores) as part of teacher evaluations**

| State | Used for Teacher Evaluations |
|---|---|
| Florida | • District Performance Appraisal Checklist<br>• 1012.34, Florida Statutes, requires that assessment procedures for instructional personnel and school administrators be based on the performance of students assigned to their classrooms or schools, as appropriate. Student performance must be measured by the required state assessments and local assessments for subjects and grade levels not measured by the state. (FLDOE Website, http://www.fldoe.org/profdev/pa.asp) |
| Louisiana | • Testing Value Added Teacher Preparation Program Assessment Model<br>• *Only for novice teachers*<br>• Grades 4–9<br>• Has the "capacity to examine the growth of achievement of children and link growth in student learning to teacher preparation programs |

The primary use for value-added modeling has been as an approach to school and district accountability. That is, growth models of student achievement are perceived as an improvement over cohort or status models that just report the percent of students achieving at various levels each year. However, as more experience with growth models has developed, other uses beyond accountability-reporting at the school and district level are being explored. For example, there are states that are exploring VAM scores as a way of evaluating/comparing teacher-preparation institutions (see Louisiana above). In addition, there are some that are using this information on individual teachers in conjunction with a merit pay initiative (e.g., U.S. Department of Education TIF, state created, etc.). Most districts have chosen not to use the linked data to evaluate teacher performance.

***What about challenges?***

None of the program descriptions pointed to specific challenges in implementation, except for Florida and Denver's ProComp initiative (teacher compensation). However, there were several reports that discussed lessons learned in developing a performance-compensation system that linked student and teacher records (Bergner, Steiny, & Armstrong, 2007; National Institute for Excellence in Teaching, July 2007). These lessons learned are summarized here:

1. **Stakeholder involvement**. Involve stakeholders from conception through implementation. Buy-in is key to linking teacher and student identifiers and then using that data as part of a teacher-evaluation system. Although the literature focuses on non-SEA stakeholders, it is also important that all education agencies/departments that collect data collaborate. While some districts have voted on using value-added measures as part of teacher evaluation or compensation systems (similar to comprehensive school reform recommendations), other educational systems have given teachers the option to participate. Still, there are some initiatives that only involve specific schools and/or districts (e.g., Amphitheater Unified School District [AZ], Benwood Initiative [TN], Guilford County [NC], etc.). Delaware held focus groups with stakeholders, while Washington created advisory councils. Regardless of how buy-in is obtained teachers, administrators, legislatures, parents, and unions should have an opportunity to share their concerns.
2. **Be transparent**. If you are transparent about how you will go about building the system and how the data will be used, then fears can be calmed. Transparency and communication are one and the same; information about the value-added model should be shared with stakeholders through various mediums and with links to relevant research reports and other useful materials. You have to be explicit about why this system is the best option for student and staff growth.
3. **Ensure confidentiality and security of individual records**. Early teacher identification numbers were social security numbers, and that has changed. FERPA ensures that teachers' and students' privacy is protected, and therefore the system developers should pay special attention to protecting them when building the system and creating reports. Badolato (2007) states that there needs to be a checks-and-balances system that ensures privacy and guides use (p. 12).
4. **Provide training to use the system.** This is an extension of stakeholder involvement. Whether the system is SEA- or LEA-based, administrators and teachers should be trained how to use the system and generate reports that meet their needs. For example, Battelle

for Kids and the Ohio Department of Education provide ongoing training on how to use value-added information.

The original question was, "What are some effective or well-developed systems to evaluate teacher effectiveness that include student-learning impact data?" Through our search we did not find well-developed systems evaluating teacher effectiveness through state achievement data. But, we found evidence that some states provide instruction on how to include student-learning measures in teacher evaluation through other sources. And we found that there were multiple examples of using value-added models as part of performance-pay programs. Overall, most states and districts advocate the use of some sort of student-learning measure in teacher evaluations, but in general they do not use a value added model as part of their teacher-evaluation system.

## VAM-Related Resources

### Organizations

- ***2004 CCSSO Brain Trust on Use of Growth Models Based on Student-Level Data in School Accountability Conference*:** November 15-16, 2004, at the Holiday Inn on the Hill, Washington, DC; conference agenda, session PowerPoint presentations, and notes are available here: http://www.ccsso.org/projects/Accountability_Systems/5508.cfm
- ***2004 Journal of Educational and Behavioral Statistics (Vol. 29, No. 1)*:** Entire issue dedicated to VAM with contributions by Ballou, Lockwood, McCaffrey, Raudenbush, Rubin, Sanders, etc.
- ***Data Quality Campaign***, http://www.dataqualitycampaign.org/
- ***Education Value-Added Assessment System (EVAAS)*:** Bill Sanders' model for North Carolina and extension of the TVAAS model; several papers are archived at the SAS site: http://www.dpi.state.nc.us/evaas/ http://www.sas.com/govedu/edu/services/effectiveness.html
- ***National Center on Performance Incentives (NCPI)*:** The NCPI at Vanderbilt University's Peabody College with funding from ED/IES for teacher performance incentive research and several working papers on VAM: http://www.performanceincentives.org/index.asp
- ***National Content Center for Teacher Quality (TQ Center)*:** The regional comprehensive center on teacher quality jointly run by ETS, Learning Point Associates, and Vanderbilt University: http://www.tqsource.org/
- ***National Conference on Value-Added Modeling*:** April 22-24, 2008, at the University of Wisconsin at Madison; all session papers and select PowerPoint presentations are located here: http://www.wcer.wisc.edu/news/events/natConf_papers.php
- ***National Council on Teacher Quality*:** http://www.nctq.org/p/
- ***National Institute for Excellence in Teaching (NIET)/Teacher Advancement Program (TAP)*:** The center, originally developed by the Milken Family Foundation and now

operated by NIET, coordinates TAP and conducts various teacher-quality studies: http://www.talentedteachers.org/

- ***Pennsylvania Value-Added Assessment System (PVAAS)*:** http://www.pde.state.pa.us/a_and_t/cwp/view.asp?A=108&Q=108916
- ***Teacher Quality Research (TQR)*:** Doug Harris and Tim Sass' website for their IES-funded teacher effects research including VAM studies: http://www.teacherqualityresearch.org/
- ***Value-Added Conference at the University of Maryland*:** October 21-22, 2004, with presentations by Alban, Schatz, & Von Secker; Ballou; Braun; Cunningham & Stone; Doran & Cohen; McCaffrey; Bryk & Ponisciak; Stevens; and Schmidt, Houang, & McKnight; session PowerPoint slides are available as well as some papers: http://www.education.umd.edu/EDMS/MARCES/conference/value_added/; and http://www.education.umd.edu/EDMS/MARCES/conference/value_added/valueadd.htm
- ***Value-Added Measures: Implications for Policy and Practice Conference*:** May 23, 2008, at the Urban Institute, Washington, DC; all session PowerPoints are available as well as mp3 audio: http://www.caldercenter.org/events/valueadded.cfm
- ***Value-Added Research Center (VARC)*:** http://varc.wceruw.org/
- ***Wisconsin Center for Education Research(WCER)*:** http://www.wceruw.org/index.php

## Resources


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## Methodology

In order to answer this request, we looked in Wilson Web (UNCG Education Database) and ERIC. In addition, we also searched Google using the phrases "value-added," "growth models," "teacher evaluation," "student achievement," and "performance pay." We also searched the websites of the following organizations: U.S. Department of Education, Institute of Education Sciences, National Content Center for Teacher Quality, Education Commission of the States, Council of Chief State School Officers (CCSSO), National Governors Association, the Wisconsin Policy Research Institute, Center for Teaching Quality, National Center on Performance Incentives, Wisconsin Center for Education Research, and National Bureau of Economic Research.

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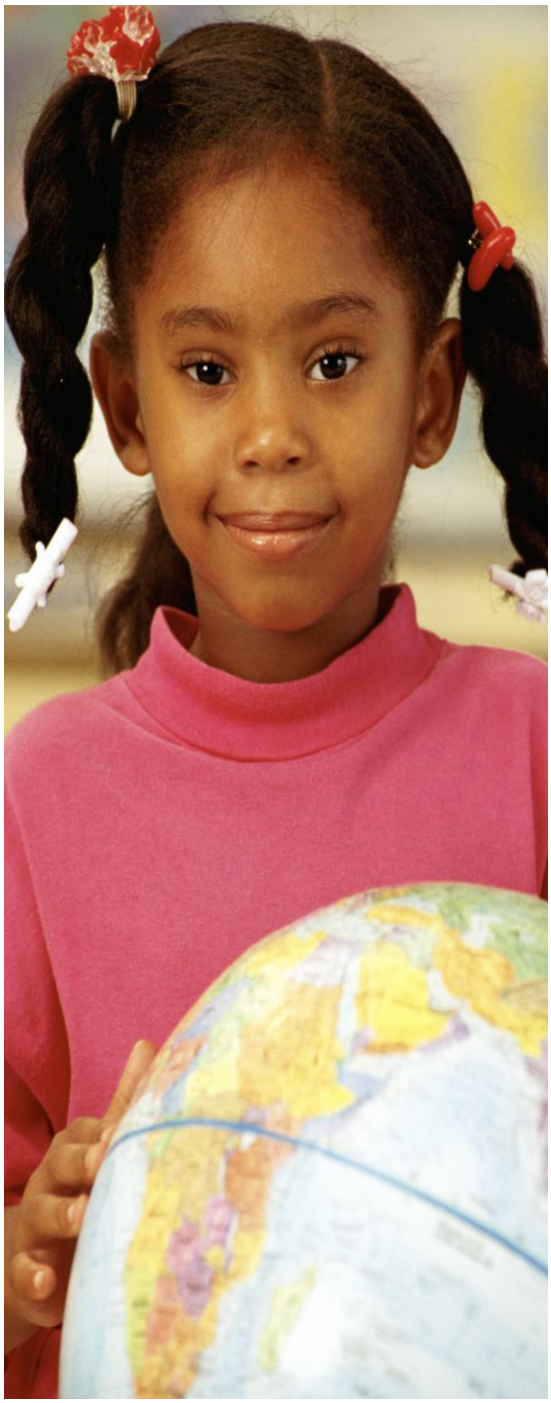

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